

## 15. BIRDS AND STANDING CROPS

Birds are friends of the farmer and not foes, says Dr. Salim Ali<sup>1</sup> mainly because they destroy insects that plague his crops. Farmers, who spend hours in driving the flocks of birds away from their crop, may not agree. Yet it is doubtful how many of them precisely know which birds are destructive and which are not and how much damage the destructive species inflict on the crop. To observe which birds come to the standing crop and what exactly they do once they alight in the fields, 20 consecutive mornings were spent in October 1979 in a group of cultivated plots which were mostly left unguarded.

The cultivated fields measured roughly 120' × 50' each. Two were adjacent divided only by a track, while the third was about a furlong away. The standing crop in all of them was *jowar* in various stages of ripening. Some cobs had very tender grain while in others grains were ripe and hardened. Out of the two adjacent fields, crop in one was cut after it had been observed for 4 days. The third field, though unguarded, had the farmer's cottage situated close by, and there was always some movement of men and animals around. While this discouraged certain species who otherwise would have come into the field, the farming operations and fallen grain around the hut, had attracted a flock of about 100 house sparrows who seemed to have taken a permanent residence there. As this tended to give a certain bias to observations, after the first 4 days, observations were concentrated in the remaining field which was totally unguarded and absolutely without any human interference during the observation period.

<sup>1</sup> ALI, SALIM (1972): The Book of Indian Birds, IXth Edition, Bombay Natural History Society, Bombay, pp. 152-153.

Observations were recorded during a one-and-half hour period between 7 and 9 a.m. Fields were also visited in the evening between 4 and 5 p.m. to record the evening activity of birds. A field, roughly of the same size but about 10 km away in the opposite direction, was also visited thrice in the morning to see if the number and variety of species differed markedly here from those in the fields under closer security. No such difference was noticed.

Except for three mornings, the sky remained cloudy during the period of observation. But there was some westerly breeze and the sun used to come out a little after 8 a.m. Evenings were sunny with a stronger breeze. During the observation period temperature varied between 18°.8' and 32°.7'C. Most of the observations were recorded by going round the periphery of the fields. But sometimes it became necessary to enter the standing crops to observe bird activity at their base or about a foot above ground.

A total of 732 individuals belonging to 34 different species came to the fields during the period of observation. The total of course includes the flock of about 100 house sparrows and birds such as a black-winged kite, a pair of red-headed merlins, a white-eyed buzzard-eagle sand martins and common, red-rumped and wire-tailed swallows that either hovered or flew over the fields. Every day the number of species visiting the fields varied between 18 and 26 with the total number of individuals varying between 75 to 165. But when observations were concentrated on the single field, the number of species per day (during observation period) varied between 7 and 15 and the number of individuals between 24 and 58.

Out of the total of 34 species observed, 13 are known to eat grain, and out of these, eight

species were actually seen plucking out and eating grains from the cobs. These 8 species were : house sparrow, common rosefinch, baya weaver, redvented bulbul, common myna, and whitethroated, spotted and blackthroated munias. The munias attacked mainly cobs with very tender grain, otherwise they tended to eat grass and weed seeds by alighting at the foot of the standing crop. To a smaller extent rosefinches and bayas also were attracted to tender grain or searched for insects on the ground. House sparrows, redvented bulbuls and common mynas ate even hardened grain. At one time a house sparrow or a baya would eat a maximum of 14 grains each ; a bulbul and a rosefinch would eat 20 grains each, while a myna would take a maximum of 40 grains at one sitting. Normally however, munias, bayas and house sparrows would take 3-4, bulbuls, rosefinches 7-8 and mynas 13-14 grains each at one time.

Blackheaded bunting, house and jungle crows, blue rock pigeon and yellowthroated sparrow are also known to eat grain but were not observed doing so. The remaining 21 species are known to be insect or flesh-eaters and came to the fields in search of these. If the 3 birds of prey and 3 species of swallow who never alighted in the fields, are excluded, 15 species of insectivorous birds were seen to alight in the fields. Out of these 15, six were actually seen to catch and eat insects and other animal food. These 6 species were : rufousbacked shrike, common green bee-eater, piedcrested cuckoo, collared bush chat, ashy wren-warbler and Blyth's reed warbler. Other insectivorous birds included : Indian wren-warbler, black and white-bellied drongos, Indian roller, Indian pipit, Indian robin and yellow wagtail etc.

While each flock of grain-eaters did not remain in the field for more than ten minutes, the insectivorous birds tended to spend all the time in the field in question. Indeed there is

reason to believe that more than half of these species even roosted in the field and for all practical purposes never left the field during the day. While everyone of the insectivorous birds was on the lookout for insects while in the field, not every individual from the gramivorous flocks would eat grain while in the field.

The number of gramivorous species visiting the field every day was only 3 or 4. These birds normally came into the fields in flocks of 3-4 to 10-12 individuals. But the number of individuals actually eating grain would be only 1-2 to 5-6 from each flock. Some of the individuals would dive down at the base of the crop among grasses and weeds for seeds and insects. The insectivorous birds came as individuals but spent almost all the time in the field. Even from the large flock of about 100 house sparrows only 30-45 were observed eating grains, the others simply indulged in chirping or preening.

What do these short observations indicate ? It appears that the majority of birds that come to the fields and spend most of their time there, are insect-eaters. The grain-eaters are fewer in numbers, spend less time in the field and even lesser time actually consuming the crop. Some of them even search for insects and remove weed seeds, activities beneficial to the farmer. While it may not be true to say that the quantity of insects removed by insectivorous birds is greater than the quantity of grain eaten by grain-eaters, in terms of value, the former may be doing a greater service to the cultivator than the amount of damage inflicted by the latter. Of course, the real damage can only be assessed by comparing the value of harvest from fields that are closely guarded and that are not guarded at all. On the basis of the present observations one may say that the actual conditions approximate more to Dr. Sálím Alí's statement than to the prevalent view of the farmers.

## MISCELLANEOUS NOTES

### BIRDS THAT CAME TO THE FIELDS WITH STANDING CROPS

#### Birds that ate grain :

1. Common Myna (*Acridotheres tristis*)
2. Redvented Bulbul (*Pycnonotus cafer*)
3. House Sparrow (*Passer domesticus*)
4. Baya Weaver (*Ploceus philippinus*)
5. Whitethroated Munia (*Lonchura malabarica*)
6. Spotted Munia (*Lonchura punctulata*)
7. Blackheaded Munia (*Lonchura malacca*)
8. Common Rosefinch (*Carpodacus erythrinus*)

#### Other grain-eaters :

9. Blue Rock Pigeon (*Columba livia*)
10. House Crow (*Corvus splendens*)
11. Jungle Crow (*Corvus macrorhynchos*)
12. Yellowthroated Sparrow (*Petronia xanthocollis*)
13. Blackheaded Bunting (*Emberiza melanocephala*)

#### Birds that ate insects or other animal matter :

14. Pied Crested Cuckoo (*Clamator jacobinus*)
15. Green Bee-eater (*Merops orientalis*)
16. Rufousbacked Shrike (*Lanius schach*)

277, SINDH HOUSING SOCIETY,  
POONA-411 007.  
April 2, 1981.

17. Ashy Wren-Warbler (*Prinia socialis*)
18. Blyth's Reed Warbler (*Acrocephalus dumetorum*)
19. Collared Bushchat or Stonechat (*Saxicola torquata*)

#### Other insect-eaters :

20. Redwattled Lapwing (*Vanellus indicus*)
21. Indian Roller (*Coracias benghalensis*)
22. Black Drongo (*Dicrurus adsimilis*)
23. Whitebellied Drongo (*Dicrurus caeruleus*)
24. Indian Wren-Warbler (*Prinia subflava*)
25. Booted Warbler (*Hippolais caligata*)
26. Indian Robin (*Saxicoloides fulicata*)
27. Brown Rock Pipit (*Anthus similis*)
28. Yellow Wagtail (*Motacilla flava*)

#### Birds of Prey :

29. Blackwinged Kite (*Elanus caeruleus*)
30. White-eyed Buzzard-eagle (*Butastur teesa*)
31. Redheaded Merlin (*Falco chicquera*)

#### Birds that hawked insects over the fields :

32. Plain Sand Martin (*Riparia paludicola*)
33. Eastern Swallow (*Hirundo rustica*)
34. Redrumped Swallow (*Hirundo daurica*)

PRAKASH GOLE

### 16. FEMALE TERRITORIALITY IN IMMATURE SALTWATER CROCODILES *CROCODYLUS POROSUS* SCHNEIDER IN CAPTIVITY AND ITS EFFECT ON GROWTH & SURVIVAL

(With two text-figures)

#### INTRODUCTION AND METHODS

Bustard and Kar (1980) demonstrated the development of territoriality in immature saltwater crocodiles in their third year kept in  $4 \times 4 \times 1$  m pools.

A group of seven juveniles, comprising three females hatched in August 1975 and two males and two females hatched in August 1976 all at

the Saltwater Crocodile Centre, Dangmal, Orissa, were brought to a specially-constructed saltwater crocodile breeding pool in Nandanakan Biological Park, Orissa on 22nd February 1978 when the two age groups were 30 and 18 months old respectively. It was proposed to rear these individuals as a breeding group, if necessary removing the second male at a later stage.